

REMARKS

The Examiner is thanked for the thorough review and consideration of the present application. The non-final Office Action dated October 8, 2004 has been received and its contents carefully reviewed.

By this Response, Applicants have amended claims 1, 3, 6, 8 and 15. No new matter has been added. Claims 1-22 are pending in the application with claims 10-14 being withdrawn from consideration. Reconsideration and withdrawal of the rejections in view of the above amendments and the following remarks are respectfully requested.

In the Office Action, claims 1-9, 20 and 21 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,926,235, issued to Han et al. (hereafter "Han"). Applicants respectfully traverse the rejection because Han fails to teach each and every feature recited in the claims of the present application. For example, Han fails to teach a liquid crystal display device including, among other features, "a first protective layer having non-contiguous portions at respective ends of the storage electrode in a layer between the storage electrode and the pixel electrode, wherein the storage electrode is directly connected to the pixel electrode at the second region of the storage electrode exclusive of the first protective layer" as recited in independent claim 1.

Han discloses a first passivation layer 113a that covers the storage capacitor 130, and a second passivation layer 113b that covers the first passivation layer 113a (see, Abstract and FIGs. 5G). However, as illustrated in FIGs. 5H and 5I, "the second passivation layer 113b and the first passivation layer 113a are etched along the developed pattern of the photo-resist, and thereby a contact hole 116 is formed through the drain electrode 106 and the storage capacitor 130 (Col. 5, lines 1-5). Based upon the structure disclosed in Han, Applicants submit the first and second passivation layers, 113a and 113b, respectively, are single layers, not having non-contiguous portions as required in the present application. As a result, Han fails to teach the structural limitations of "a first protective layer having non-contiguous portions at respective ends of the storage electrode formed in a layer between the storage electrode and the pixel electrode, wherein the storage electrode is directly connected to the pixel electrode at the second region of the storage electrode exclusive of the first protective layer" as recited in independent

claim 1. Because Han fails to teach each of these structural features recited in independent claim 1, claim 1 and its dependent claims 2-5 and 20-21 are allowable over Han.

Han also fails to teach or suggest a liquid crystal display device that includes “the pixel electrode covering an upper surface and side edges of the storage electrode, wherein the storage electrode is directly connected to the pixel electrode at the second region of the storage electrode” as recited in independent claim 6 of the present application. Applicants respectfully note the first passivation layer 113a and second passivation layer 113b cover the upper and side surfaces of the storage capacitor 130. Further the pixel electrode 104 only contacts the storage capacitor via the contact hole. As such, the pixel electrode in Han fails to meet the structural limitations recited in independent claim 6. Because Han fails to teach or suggest at least these features of claim 6, claim 6 and its dependent claims 7-9 are allowable over Han.

Reconsideration and withdrawal of the rejection of claims 1-9, 20 and 21 are respectfully requested.

In the Office Action, claims 1-4, 6-8 and 20 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,091,466, issued to Kim et al. (hereafter “Kim”). Applicants respectfully traverse the rejection because Kim fails to teach or suggest each and every feature recited in the claims of the present application. For example, Kim fails to teach a liquid crystal display device including, among other features, “a storage electrode having a first region overlapping with the gate line to form a storage capacitor and a second region offset and parallel to the gate line; a first protective layer having non-contiguous portions at respective ends of the storage electrode in a layer between the storage electrode and the pixel electrode” as recited in independent claim 1.

The Office Action has relied upon FIG. 5F of Kim for teaching each of the features recited in independent claim 1. However, as can be observed beginning in FIG. 5E of Kim, “a passivation layer 137 is formed by coating an organic insulation material such as BCB (Benzo-Cyclo-Butene) on the entire structure. (Emphasis added, see col. 6, lines 11-13). Further, “a drain contact hole 171 and a storage capacitor contact hole 181 are formed by patterning the passivation layer 137 using fifth mask process. The drain contact hole 171 exposes a portion of

a surface of the drain electrode 131, and the storage capacitor contact hole 181 exposes a portion of a surface of the storage capacitor electrode 151” (col. 6, lines 13-19). “The pixel electrode 141 also connects to the storage capacitor electrode 151 through the storage capacitor contact hole 181” (col. 6, lines 29-33). Applicants respectfully note the pixel electrode fails to contact the storage capacitor electrode 151 in a second region, as required in the claims of the present application. As a result, Applicants submit Kim fails to teach a liquid crystal display device including the structural features recited in the claims of the present application. Specifically, Kim fails to teach “a first protective layer having non-contiguous portions at respective ends of the storage electrode in a layer between the storage electrode and the pixel electrode, wherein the storage electrode is directly connected to the pixel electrode at the second region of the storage electrode exclusive of the first protective layer” as recited in independent claim 1. Because Kim fails to teach each of the features recited in independent claim 1, claim 1 and its dependent claims 2-4 and 20 are allowable over Kim.

Independent claim 6 is allowable over Kim because Kim fails to teach or suggest a liquid crystal display device that includes “a storage electrode having a first region overlapping the gate line to form a storage capacitor, and a second region offset and parallel to the gate line; and the pixel electrode covering an upper surface and side edges of the storage electrode, wherein the storage electrode is directly connected to the pixel electrode at the second region of the storage electrode.” As discussed above, the pixel electrode 141 only contacts the storage capacitor electrode 151 via a contact hole. As such, the pixel electrode in Kim fails to fulfill the structural requirements recited in independent claim 6. Because Kim fails to teach at least these features recited in independent claim 6, claim 6 and its dependent claims 7-9 are allowable over Kim.

Reconsideration and withdrawal of the rejection of claims 1-4, 6-8 and 20 are respectfully requested.

In the Office Action, claims 15-18 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Han in view of U.S. Patent No. 6,262,784, issued to Kim (hereafter “Kim”). Applicants respectfully traverse the rejection because neither Han nor Kim, analyzed alone or in any combination, teaches or suggests the combined features recited in the claims of

the present application. For example, Han and Kim fail to teach or suggest a liquid crystal display device that includes, among other features, “a first protective layer patterned on non-contiguous portions at respective ends of the storage electrode in a layer between the storage electrode and the pixel electrode, wherein the pixel electrode directly connects to the storage electrode at the second region exclusive of the first protective layer” as recited in independent claim 15.

The Office Action concedes that Han fails to teach or suggest all the combined features recited in independent claim 15 and relies upon the teachings of Kim to remedy the deficient teachings of Han. Applicants respectfully submit that even if the teachings of Kim were used to modify the device in Han, which Applicants do not concede there is proper motivation to do, the resulting combination would still fail to teach all the combined features recited independent claim 15. Specifically, as discussed above with respect to Han, the first passivation layer 113a and second passivation layer 113b do not have non-contiguous portions at respective ends of the storage capacitor 130, as are required in claim 15 of the present application. Further, Kim discloses a first electrically insulating layer 120 and a second electrically insulating layer 160. As illustrated in FIGs. 8 and 9 of Kim, the pixel electrode 7 contacts the second electrically insulating layer 160 and first electrically insulating layer 120 and does not contact the storage electrode 130b. Accordingly, Kim fails to remedy the deficient teachings of Han.

Because Kim does not remedy the deficient teachings of Han, no combination of Han and Kim would provide a liquid crystal display device having the combined features recited in independent claim 15. Thus, independent claim 15 and its dependent claims 16-18 and 22 are allowable over any combination of Han and Kim. Reconsideration and withdrawal of the rejection of claims 15-18 and 22 are respectfully requested.

Applicants kindly acknowledge the indication of allowable subject matter in claim 19, but elect not to rewrite claim 19 to independent form at this time to permit the Examiner an opportunity to reconsider all the claims of the application in view of the amendments and remarks presented in this Response.

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Amendment dated January 10, 2005
Reply to Office Action dated October 8, 2004

Docket No.: 8733.524.00-US

In view of the above, each of the presently pending claims in this application is in condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned (202) 496-7500.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R § 1.136, and any additional fees required under 37 C.F.R. § 1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to Deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Dated: January 10, 2005

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